DOCUMENT RESUME

ED 231 515 PS 013 598

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TITLE The Transition from Gestural to Linguistic Communication: Social Variations in a Mestiza Population.
PUB DATE Dec 82
NOTE 8p.; Paper presented at the American Anthropological Association Meeting (Washington, DC, December 1982).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Achievement; *Child Caregivers; *Communication (Thought Transfer); Comprehension; Early Childhood Education; Foreign Countries; *Infants; *Language Acquisition; Linguistic Competence; *Teacher Role
IDENTIFIERS *Mestizos (People); Mexico; *Toddlers

ABSTRACT

This study, an intra-cultural comparison among a Mestiza population in Central Mexico, was designed to investigate what the universal and culture-specific aspects of children's transition from sensorimotor to linguistic communication might be. (The culture-specific aspect was defined in this study as the degree to which caregivers provided sensorimotor information when messages were not immediately comprehended.) A total of 17 caregiver/child pairs selected from urban and rural areas were videotaped at 6-week intervals over a 9- to 12-month period. These videotapes were then examined to assess the nature and sources of variations in caregiver style. Each sequence was described in terms of attention and the sensorimotor structure of the event: in other words, the propositional content and the interactional setting. The propositional content was categorized in terms of persons, objects, and location. In general, results indicated that, in interactions with less-educated caregivers, the missing information was provided serendipitously or unintentionally by the natural unfolding of events or by spontaneous acts of siblings. The more-educated caregivers appeared to be continually monitoring the child and correcting themselves and the child in order to assist comprehension. (MP)

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(Paper to be read at the SOCIALIZATION AND LANGUAGE ACQUISITION session of the American Anthropological Association Meeting in Washington, D.C., December, 1982.)

ED231515

The Transition from Gestural to Linguistic Communication: Social Variations in a Mestiza Population

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Most child-language research is based upon data collected from families with a high level of formal education living in urban settings in Western nations. Data from Third-World children living in rural settings and/or from families with little formal education are severely under-represented. The theories that arise from these limited data are implicitly, if not explicitly, ethnocentric. This study, an intra-cultural comparison among a Mestiza population in Central Mexico, was designed to provide a more representative data-base for investigating the universal and culture-specific aspects of the transition from sensori-motor to linguistic communication during the one-word period.

Earlier work in the U.S. (Zukow, Reilly, and Greenfield, 1982) with Judy Reilly and Patricia Greenfield suggested that the interactive style of middle-class caregivers contributed significantly to this transition. In that work, we asked the following question: How do children who are able to communicate successfully in sensorimotor interaction acquire the ability to transact a successful linguistic communication? To study this transition, we selected what is undoubtedly the most basic and well-established interactive routine in these infants' sensorimotor repertoire, the adult-initiated offer. Our hypothesis was that a mother could utilize this well-understood interactive context to help her baby progress to the comprehension of offers presented on a purely linguistic level. The specific focus of our research was to examine how the caregiver works to provide a shared context that is sensitive to the child's abilities at different points in the developmental process.

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Very briefly we found that early in the one-word period messages were usually enacted entirely on the sensorimotor level. That is, all elements of the sensorimotor structure were tangibly present. For example, when a caregiver made an offer she got the child's attention and proffered an object, such as an apple, by extending it toward her child in her upturned palm. During the middle level, caregivers often presented messages simultaneously on the sensorimotor and linguistic levels, providing a sensorimotor translation of the verbal utterance. For instance, the caregiver might say, "Do you want the apple?" while extending her upturned palm with apple in hand toward her child. If sensorimotor elements were missing and the child did not initially comprehend the offer, the caregiver often made them available to facilitate the child's eventually successful comprehension of the interaction. In some cases, the apple might simply be on the table when the caregiver said, "Do you want the apple?". If the child didn't respond the caregiver might confirm that the child was attending and then add the missing gestural component by proferring the apple. When information was not supplied on the sensorimotor level, the children were unlikely to comprehend the messages. Finally, at the third level, many messages were comprehended by the children even though sensorimotor support for the linguistic messages decreased. That is, on some occasions the caregiver could be comprehended when she said, "Do you want an apple?" or "Do you want to throw the ball?" with little contextual support available.

Apparently, the child was no longer limited to the information provided by the immediate situation but could bring her/his own knowledge of the world to bear upon the interpretation of ongoing events. Our work supports the notion that the simultaneous presentation of nonverbal and verbal messages at the middle level of the one-word period provides

a means for the child to crack the linguistic code.

In the present study measures were taken to effectively deal with several profound methodological problems besetting cross-cultural research, including the problem of stimulus (vs functional) equivalence as it is called in psychology (Mischel, 1977) or the emic-etic problem as it is called in anthropology (Malpas, 1977) and the issue of ecological validity. The problem of stimulus (vs functional) equivalence can be resolved by operationalizing abstract interactional concepts in a culturally meaningful way. In this case, to insist upon stimulus equivalence, offering, would make an analyis impossible since this appears to be a rare event in the less educated sample. Rather than analyzing 'offers; to engage in activities with objects and/or persons, I collected instances in which children were urged to interact with objects and/or persons. These were often imperative sequences which occurred among all caregiver-child pairs. To meet the criteria for ecologically valid research (Cole, Hood, & Mc Dermott, 1978; Bronfenbrenner, 1976), the data consist of videotapes of naturally occurring events, ordinary everyday activities in the home. Further, the analytic method depends upon and agrees with the coparticipants' interpretation of events.

Method

Selection of the caregiver sample. Since one of the objectives of this study was to investigate the environmental causes of group differences, the caregiver population varied according to degree of urbanization (urban/rural) and level of education (professional training/ less than four years of primary schooling). To control for language, race and culture, all caregivers came from the traditional Mestiza culture. The sample included 7 caregiver-child pairs in a major urban setting (2 with professional training, 5 with primary school) plus 10 pairs in a rural setting (2 with semi-professional training, 8 with primary school).

Selection of the children. The children were selected on the basis of observations that confirmed they had attained an appropriate level of semantic development as described by Greenfield and Smith (1976). The productive use of the following semantic functions served as criteria for classification within the three levels: Level I - performative (saying bye-bye while waving bye-bye), indicative object (pointing at a cookie while saying cookie), and volitional object (whining and reaching for milk while saying milk); Level II - agent, object, and action/state, such as saying down while coming down the stairs; and Level III - object associated with another object, object associated with an animate being, and location, such as saying chair while putting a ball on a chair. The children were from 11 to 30 months old.

Procedure. Caregivers selected interactive settings in which the most communication could be expected. Not surprisingly, these situations involved mealtime and play. The caregiver-child pairs were videotaped at six week intervals over a nine to twelve month period.

Analysis. Each audiotape was transcribed by a native speaker. At least one-half of all the videotapes for each child were reviewed by the caregiver and myself for accuracy. In cases of disagreement, the caregiver was always considered the expert. The videotapes of these naturalistic interactions were examined to assess the nature and sources of variations in caregiver style. Each sequence was described in terms of attention and the sensorimotor structure of the event: the propositional content and the interactional setting. The propositional content was categorized in terms of persons, objects, and actions. The interactional setting included the location and the appropriate configuration of the persons and objects in space for a particular activity. From this information a comparison could be made between the presence or absence of attention and the background elements at the initiation and termination

of each sequence.

Results.

I have very recently returned from 15 months of field work. I want to caution you that the results I am reporting today are quite preliminary. The results from the present study are similar to the major findings of the U.S. study, independent of level of education and degree of urbanization. First, at Level I, most messages involving the transfer of an object were enacted on the sensorimotor level. Next, at Levely II, the message was often presented on the linguistic and sensorimotor levels simultaneously. Finally, by Level III some messages could be comprehended without some of the sensorimotor support. However, the degree to which caregivers provided missing information when an utterance was not initially comprehended appears to vary with level of education.

The following examples highlight this difference. However, the differences are a matter of degree and are not absolute. The next segment was an example of an eventually successful imperative sequence typical of Level II and of more highly educated caregivers. Margarita, the mother, and Lucha had been singing while Lupe, the 7 year-old sister, stood off to the side, some distance away. Margarita told Lucha to sing with her sister, "Canta con Lupita.". Lucha did sing, but all by herself. Margarita then told Lupe to sit right next to them, bringing Lupe into the appropriate configuration to be 'with' the singer. Margarita redid her part emphasizing that the two should sing by saying "Cantan! Cantan!". She used the second person plural imperative to include Lupe more explicitly. And Lupe joined in the singing to provide her younger sister with a sensorimotor translation of her mother's utterance.

In the next fragment, eventual success of the imperative is far more serendipitous with a less educated caregiver. Irene had been playing with

a baby food jar which she had dropped when distracted by some other event. Irene was looking across the backyard where she was standing with her mother, Marta. Marta saw the jar on the ground behind Irene and said, Mira, te falta el este!"(Look, you're forgetting this!), "Levanta el frasco!" ("Pick up the jar!"). Irene did not respond. Her mother turned to walk away. She did not get Irene's attention, point to the jar, and/or pick it up and give it to Irene. However, the noise of Marta's turning attracted Irene's attention. As Irene turned to follow her mother she saw the jar and picked it up. In this instance the natural flow of the interaction provided the child with an opportunity to enact what had just been said. The caregiver encouraged the child on the linguistic level to engage in a culturally recognizable act familiar to the child but did not monitor closely to see if the child comprehended her or not as her more educated counterpart did in the singing sequence.

Discussion.

The objective of this study was to determine what the universal and culture-specific aspects of the transition from sensorimotor to linguistic communication might be. The culture-specific aspect of this process was the degree to which caregivers provided sensorimotor information when messages were not immediately comprehended. In interactions with less highly educated women the missing information was provided more serendipitously or unintentionally by the natural unfolding of events or by spontaneous acts of siblings. The more educated women appear to be continually monitoring the child and repairing their own and the child's part in order that the child display comprehension. It appears that this latter style is sufficient but not necessary for the transition to the comprehension of linguistic communication. A candidate universal is the pairing of sensorimotor and linguistic messages during the crucial middle level of the one-word period. In every setting and at both levels of education a sensorimotor translation of the linguistic message was provided.

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